✦ Roadmap
Agricultural Efficiency

Legend:
- Unfunded
- Funded
- Decision-Support Tool

EARTH SCIENCE RESEARCH	DECISION-SUPPORT INPUTS	GOALS/PARTNERS

State 2 Enhanced DSS (CADRE) integrating new-generation image products, precipitation data, and crop models for more accurate crop production assessments

Transition to NPOESS with cross-calibration to legacy systems. Integrated system to ingest data from a wide variety of commercial high-resolution systems

Outcomes: Better information on hot spots

Impacts: Long-term operational sustainability that exploits all available systems

Transition to VIIRS/NPP and other new data sources as they come online. Integrate data into operational systems. Benchmark new capabilities

Outcomes: New tools to exploit enhanced capability for region-specific modeling and prediction; ability to compare new data to archive

Impacts: More accurate crop assessments based on new operational capabilities

Evaluate, via data simulations, new data sources (OCO, Aquarius, HYDROS) on predictive capabilities and production estimates

Outcomes: New tools for analysts to exploit enhanced system capability for region-specific modeling and prediction

Impacts: More accurate production estimates

New MODIS-based vegetation, envapotranspiration, and TRMM products for CADRE database and crop models

Outcomes: New tools for analysts to exploit enhanced system capability for region-specific modeling and prediction

Impacts: More accurate and timely drought monitoring, and enhanced prediction of yield

Rapid response delivery system for daily MODIS products; reservoir stage products

Outcomes: New source of data available to analysts offering unprecedented spatial, spectral, and temporal coverage

Impacts: More accurate acreage and production assessments. Earlier detection of potential problem areas

State 1 CADRE: DSS that integrates Landsat and AVHRR with limited crop models and coarse gridded weather data

Improved decision support capabilities of the agricultural community for prediction and monitoring of agricultural production and yield.

(NOAA logo) *(USDA logo)*

Enhanced Decision Support (vertical axis label)

EARTH OBSERVING MISSIONS

TOPEX	TRMM	Landsat 5, 7	Terra	Jason-1	Aqua	NPP	OCO	Aquarius	GPM	HYDROS	NPOESS

2003   2005   2007   2009   2011   2013

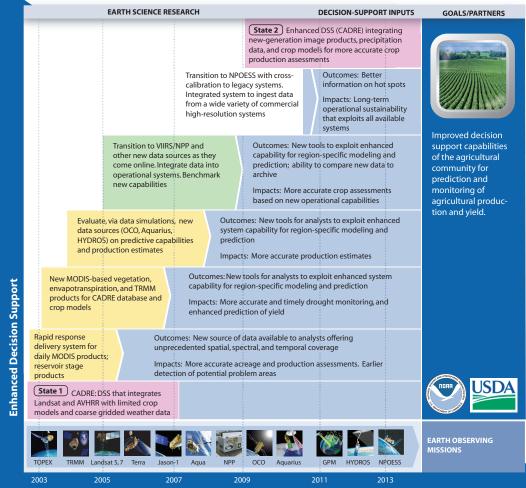## Where we are now

USDA Foreign Agriculture Service (FAS) using data from Landsat, MODIS, AVHRR, Jason-1, and TOPEX/Poseidon in production and yield estimates issued by the World Agricultural Outlook Board for major agricultural commodities. USDA using Earth science data to improve the timeliness and accuracy of FAS reports on disruption in agricultural productivity due to floods, fires and other natural phenomena

USDA and NASA have a partnership agreement to integrate Earth science data into agricultural decision-support tools

Where we plan to be

USDA and FAS using NPP to enhance climate and weather predictions to assess and report on agricultural conditions

USDA using observations from HYDROS, GPM, OCO, and Aquarius to drive predictive models that incorporate information on soil moisture, rainfall, carbon fluxes, and sea surface salinity into better estimates of climate impact

2004 ——————————————— 2012